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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,996	02/25/2002	Akihiko Nagano	1232-4825	5742

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EXAMINER
YAM, STEPHEN K

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/083,996	Applicant(s) NAGANO, AKIHIKO	
	Examiner Stephen Yam	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-30 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 8, 11-14, 18, 23-25, and 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakahara US Patent No. 6,195,509.

Regarding Claim 1, Nakahara teaches (see Fig. 2A) an image sensing element for sensing an image formed by an image sensing lens (inherent in a camera), comprising a pixel (1-1L) which includes a first light-receiving region (6L) that includes a region where a principal ray having passed through the image sensing lens is incident, and a second light-receiving region (1D, 2D) that does not include the region where the principal ray having passed through the image sensing lens is incident (since the region is not in the center of the optical axis).

Regarding Claim 18, Nakahara teaches (see Fig. 2A) an image sensing apparatus comprising an image sensing element having a pixel (1-1L) which includes a first light-receiving region (6L) that includes a region where a principal ray having passed through an image sensing

lens is incident, and a second light-receiving region (1D, 2D) that does not include the region where the principal ray having passed through the image sensing lens is incident (since the region is not in the center of the optical axis), and a control unit (100) (see Col. 7, line 63 to Col. 8, line 3) for detecting a focus state of the image sensing lens by using the second light-receiving region, and performing focus adjustment.

Regarding Claims 2 and 23, Nakahara teaches the second light-receiving region including two divided light-receiving regions (1D and 2D) sandwiching the first light-receiving region.

Regarding Claims 3 and 14, Nakahara teaches (see Col. 5, lines 38-40) the two divided light-receiving regions used to detect a focus state of the image sensing lens.

Regarding Claims 5, 13, and 24, it is inherent that two detectors at different locations both perpendicular to the optical axis receive different optical image based on the refraction of the lens, and that the regions sandwich an optical axis formed between the two divided light-receiving regions.

Regarding Claims 8 and 25, Nakahara teaches (see Fig. 2A) an interval between the two divided light-receiving regions is relatively narrow at a center of the first light-receiving region and relatively wide at two ends of the first light-receiving region

Regarding Claims 11 and 28, Nakahara teaches (see Fig. 2A) the region formed by the first and second light-receiving regions having a substantially regular polygonal shape (rectangle).

Regarding Claims 12 and 29, Nakahara teaches (see Fig. 2A) the second light-receiving region having a shape "substantially" obtained by cutting off each corner of a square.

Regarding Claim 30, Nakahara teaches (see Fig. 3) an image processing apparatus (50, 51, 100) comprising the image sensing apparatus in Claim 18.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7, 9, 10, 13, 17, 22, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakahara.

Regarding Claims 7 and 22, Nakahara teaches the image sensing element and apparatus as taught in Claims 1 and 18, according to the appropriate paragraph above. Nakahara also teaches individually outputting charges in the first and second light-receiving regions. Nakahara does not teach outputting a sum of charges in the first and second light-receiving regions. It is well known in the art to sum the charges in multiple photodetectors, to provide a greater detection area. It would have been obvious to one of ordinary skill in the art at the time the invention was made to sum the charges in the first and second light-receiving regions in the image sensing element and apparatus of Nakahara, to provide greater sensitivity for exposure analysis in low-light situations.

Regarding Claims 9, 10, 26, and 27, Nakahara teaches the image sensing element and apparatus as taught in Claims 1 and 18, according to the appropriate paragraph above. Nakahara does not teach the first light-receiving region is relatively narrow at a center and relatively wide

at two ends, or the first light-receiving region narrower than a width of each of the two divided light-receiving regions at a center and wider than the width of each of the two divided light-receiving regions at two ends. It is design choice as to the shape of the light-receiving regions, to fit the components into a desired physical configuration. It would have been obvious to one of ordinary skill in the art at the time the invention was made to shape the first light-receiving region as narrow at the center and wide at the two ends and the first light-receiving region narrower than that of the two divided light-receiving regions at the center and wider at the ends in the image sensing element and apparatus of Nakahara, to fit the regions into a specific dimensional area as desired by design preferences.

Regarding Claims 13 and 17, Nakahara teaches the image sensing element as taught in Claim 1, according to the appropriate paragraph above. Nakahara does not teach a microlens which causes the two divided light-receiving regions to receive beams from two predetermined regions of the image sensing lens. It is well known in the art to use a variety of lenses to modify the imaging view and concentrate or diverge light beams corresponding to the image. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a microlens to receive beams from two predetermined regions on the imaging lens sandwiching an optical axis in the element of Nakahara, to properly shape the incoming image while reducing the size of the element.

3. Claims 4, 6, 15, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being obvious over Nakahara in view of Suzuki et al. US Patent No. 5,751,354.

Regarding Claims 4, 15, and 19, Nakahara teaches the image sensing element and apparatus as taught in Claims 1 and 18, according to the appropriate paragraph above. Nakahara does not teach the second light-receiving region used to detect a focus state **and** photograph an object. Suzuki et al. teach (see Fig. 1) an image sensing element and apparatus with an image sensing lens (1) and a light-receiving region (4) that detects a focus state (S4) (see Fig. 2), exposure (S2, S11) (see Col. 5, lines 33-40), and photographs an object (S12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the image sensing element of Suzuki et al. for photographing an object in the image sensing element and apparatus of Nakahara, to reduce the number of components in the system and reduce the size of the camera.

Regarding Claims 6, 16, 20, and 21, Nakahara teaches the image sensing element and apparatus as taught in Claims 1 and 18, according to the appropriate paragraph above. Nakahara also teaches determining the amount of light present in the imaging using the first light-receiving region (see Col. 5, lines 34-41- "photometering"). Nakahara does not teach determining a time in which charges are accumulated in the second light-receiving region. Suzuki et al. teach (see Fig. 1) an image sensing element and apparatus with an image sensing lens (1) and a light-receiving region (4) that detects a focus state (S4) (see Fig. 2), exposure (S2, S11), (see Col. 5, lines 33-40) and determining (S2) a time in which charges are accumulated for the focusing process (S3) (task of the second light-receiving region). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the first light-receiving region to determine a charge-accumulation time for the second light-receiving region (for focusing) as taught by Suzuki et al. in the image sensing element and apparatus of Nakahara, to prevent

underexposure or overexposure to the second light-receiving region to achieve accurate focusing results.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY
April 7, 2003

DAVID PORTA
SUPERVISORY PATENT EXAMINER
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